United States Census 2000

U.S. Census Bureau
Press Briefing Background Documents
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Questions and Answers on the Accuracy and Coverage Evaluation Survey and Statistical Sampling

Why is the Census Bureau still talking about statistical sampling? Didn't the Supreme Court prohibit it? Wasn't it ruled unconstitutional?

No. The Supreme Court ruled that modern scientific methods could not be used for the purpose of apportioning the seats in the U.S. House of Representatives. These are the state population counts released to the President by Dec. 31, 2000. The court based this ruling on the provisions of the Census Act, but did not issue a judgment on the constitutionality of sampling. The court indicated that this statutory provision requires the use of sampling in making corrections to the counts used for other purposes, if feasible. Those purposes would include the redrawing of the congressional districts and state legislative districts. By law (Public Law 94-171), the population totals used for redistricting must be delivered before April 1, 2001. At present, the Census Bureau is planning to release two sets of numbers for redistricting: an unadjusted and an adjusted set.

Has the Census Bureau decided to release the adjusted numbers?

The Census Bureau is still conducting Census 2000 and has just begun to conduct the Accuracy and Coverage Evaluation (A.C.E.) survey on which any adjustment will be based. No decision on whether to present the adjusted numbers can be made until the Census Bureau has the opportunity to compare the data from the census and from the A.C.E. The Census Bureau expects to make a decision in February 2001 based on completing the analysis of these data in order to meet our legal deadline in releasing the P.L. 94-171 data described above. The Bureau believes that barring any unforseen operational issue, the corrected counts will be the most accurate.

Why is the Census Bureau releasing documents pertaining to adjustment today if the decision is so far off?

There are several reasons why we are issuing the document:

The Census Bureau has been examining the issues arising from the plan to use statistical methods to statistically correct the census for nearly a quarter a century. The current director, Dr. Kenneth Prewitt, has been discussing the methodology and the technical issues with the staff of the Census Bureau and other knowledgeable experts for more than a year. Prewitt and Census Bureau staff have completed their assessment and are publicizing it today to keep the public informed about the status of Census Bureau plans.

In addition, the Census Bureau is operationally on schedule to finish non-response follow-up and move toward the implementation of A.C.E. later this month. For that reason, the A.C.E. operation becomes the focus of attention. It is therefore timely to issue a statement addressing this process.

As well, there have been concerns expressed regarding the possibility for political tampering in the Census Bureau's use of statistical methods to make the census counts more accurate. Both the Director and the Secretary of Commerce want to address these concerns. The intention and the method by which the Census Bureau will proceed, as clearly laid out in this document and the accompanying regulation, ensure that accuracy is the standard used for making an adjustment, and removes even the appearance of political tampering.

In general, doesn't the Census Bureau favor adjusting census counts?

Since the 1940 census, the Census Bureau has found a differential undercount between the net overall undercount and the net undercount for African Americans. In spite of its best efforts to conduct the census using traditional enumeration methods, the Census Bureau expects the differential undercount to persist in Census 2000 for African Americans and other minority groups. The Census Bureau expects that any further decrease in the undercount and the differential undercount can best be achieved through the use of statistical methods.

The use of modern statistical methods to correct for census undercounts has been widely discussed for several decades. This document summarizes and discusses the major issues and concerns that have been raised.

What experts endorse this approach?

Numerous other organizations agree that the use of a properly conducted scientific survey in conjunction with the enumeration has the potential to produce a more accurate census in 2000. These include, among others, the American Statistical Association, the American Sociological Association, the General Accounting Office, the Inspector General of the Department of Commerce, the Secretary of Commerce's Census 2000 Advisory Committee, the Census Bureau's Advisory Committee of Professional Associations, and the Census Bureau's Race and Ethnic Advisory Committees.

Many other organizations, including the National Academy of Sciences, share the view that a properly designed and executed coverage measurement survey will produce a more accurate census.

What documents are included in today's release?

Two sets of documents are released today:
1. Text of a proposed new regulation — to be published in the Federal Register — proposing to delegate to the Director of the Census the decision about whether or not to adjust.

2. An exchange of transmittal documents between the Secretary of Commerce and the Director of the Census regarding the Director's finding that it is both technically and operationally feasible to adjust the counts, the provisions under which a decision on adjustment can be made and, and a legal memorandum from the General Counsel's Office at the Department of Commerce on the governing legal standard.

Is there any precedent for delegating the authority to adjust census data to the Director of the Census?

Yes, in May 1980, Secretary of Commerce Philip Klutznick authorized Census Bureau Director Vincent Barabba to make the final decision regarding adjustment. After analyzing the data, the Census Bureau decided against adjusting the 1980 census data. In 1990, a committee of Census professionals recommended adjustment to the Director of the Census on a 7-2 vote. The Secretary of Commerce overturned this recommendation and chose not to adjust the 1990 count.

What does the feasibility document say?

This document states the Census Bureau's preliminary determination that it is feasible to produce statistically corrected census data within the time frame required by law and that the statistical correction will improve the accuracy of the data.

The document defines the feasibility of sampling based on its two criteria: 1) operational feasibility – whether its use is possible given available resources and within required deadlines; and 2) technical feasibility – whether its use, if carried out as planned, is expected to improve the overall accuracy of census data for nonapportionment uses of the data.

Based on decades of research and experience, the Census Bureau expects the use of statistical methods will improve the accuracy of the census and reduce the differential undercount. The feasibility document describes the extensive research and experience with coverage measurement surveys using Dual System Estimation, which culminates in the Census 2000 Accuracy and Coverage Evaluation (A.C.E.)

This statement is a preliminary determination because neither statistically corrected redistricting, nor other data will be released until the Census Bureau has reviewed the available data to verify that its expectations have been met.

The document describes the rationale for why the Census Bureau expects the use of statistical methods, if implemented properly, to improve accuracy. The document defines the two types of accuracy: 1) numerical – how close the overall count of an area or group is to the actual number of people in the area or in the group, and 2) distributive – how close the relative proportion of an area or group is to its true share relative to other groups or areas. The goal of the Census Bureau is to achieve both numerical and distributive accuracy.

How will a final determination be made whether to release the statistically corrected redistricting data?

The process that the Director of the Census will follow is described in a proposed regulation from the Department of Commerce. The process in the regulation gives the Director of the Census the final authority to make the determination. The Director will be informed by the recommendation made by a committee composed of senior career staff at the Census Bureau. After considering the recommendation, the Director will make the final decision. The recommendation of the committee and the decision of the Director will be made public.

What did the Census Bureau do to improve Census 2000 over the 1990 census?

Although the document describes, in some detail, the extensive research surrounding the use of statistical methods to improve the accuracy of the census enumeration, the Census Bureau also is committed to extensive research and innovation to improve other aspects of census-taking. This process parallels the multi-year span of methodological research and planning that goes into preparing for a decennial census. For Census 2000, there have been a number of innovations introduced that the Census Bureau believes have had major impacts on making the census more accurate and operationally smoother. Some of these efforts include:

- a more comprehensive address file.
- a more extensive (and the first paid) advertising campaign.
- an expanded Census in schools program.
- extensive partnership efforts with state, local and tribal organizations.
- a more effective questionnaire mailout/mailback campaign.
- advanced technologies to increase the accuracy and speed of the data collection and processing phases of the enumeration.

How the Census Bureau Came to Adopt a Census 2000 Plan That Includes Modern Scientific Methods

1940 — Census Bureau successfully uses probability sampling for the first time in the 1940 census. To reduce respondent burden, it asks "supplementary" questions of a sample of about 5 percent of the population. The rest are asked only basic questions. Previously, these scientific methods had been employed to measure crop acreage and yields in the 1920s, and to count the unemployed and survey retail stores in the 1930s.

1940 — This also is the census for which the Census Bureau obtains hard proof that it was not counting in its censuses the entire population, particularly Blacks. Demographic analyses show that 3 percent more draft-age men and 13 percent more Blacks registered for the World War II draft pool than had been counted in the 1940 census. Another demographic study finds significant differences in the coverage of Blacks and non-Black children in the 1940 census.

1950 — Following the 1950 census, the Census Bureau conducts the first coverage measurement survey — a combination area and list sample of 21,000 to 25,000 households; this survey reports a net national undercount of 2.1 million people (or 1.4 percent) — the difference between erroneous omissions and erroneous inclusions.

1957 — Congress passes the Census Act, which allows the use of sampling in the 1960 census "in such form and content as (the Secretary of Commerce) may determine," but states that sampling may not be used to reapportion the U.S. House of Representatives.

1970 — The Census Bureau matches the Current Population Survey (CPS) roster of about 50,000 housing units against the 1970 census results. The CPS universe is considered too small to serve as the basis for reliable undercount data, however.

1970 — Two targeted post-census samples result in corrections to the official 1970 census numbers. In one, the National Vacancy Check, a national sample of units listed as vacant by enumerators are rechecked to estimate the magnitude of suspected problems and to derive factors for use in a synthetic estimation procedure. More than 1 million people are added to the official census counts as a result of this procedure. In the other operation, the 1970 Post Enumeration Post Office Check, post offices in 16 southern states check the census listings of addresses following field enumeration and report unlisted units back to the Census Bureau. Samples of these are checked out to estimate missed rates. These then are used to impute housing units and persons to counts at the local level. More than 500,000 people are added to the official counts for these states.

1976 — Congress amends the Census Act to explicitly require the Secretary of Commerce to use sampling "if he considers it feasible." It further requires the Secretary to take the decennial census "in such form and content as he may determine, including the use of sampling procedures and special surveys." This change in wording is consistent with congressional recognition of sampling

as an acceptable data collection technique.

1980 — The Census Bureau conducts a coverage measurement survey in 1980 called the Post Enumeration Program (PEP). Substantial missing data and other difficulties in interpreting the findings result in 12 widely varying alternative sets of estimates. Given this uncertainty, the Census Bureau rejects plans to incorporate results from the PEP in the population totals of the 1980 census. Lawsuits by the cities of Detroit, New York and others calling for adjustment do not prevail.

1985 — The Census Bureau develops a research strategy to adjust the 1990 census based on the Post Enumeration Survey (PES), which is designed to have a sample size of 300,000 households.

1987 — The Commerce Department decides against adjusting the 1990 census. The decision causes the Census Bureau to reduce the PES's sample size to 150,000 households and to declare it will use the results of the survey for evaluation only.

1988 — New York City sues the Secretary of Commerce and demands that the Census Bureau be allowed to use the results of the PES to adjust the census totals. A stipulation agreement is entered ordering the Census Bureau to reinstate the 150,000-household PES as a "potential source" of census adjustment in 1990.

1991 — The Post Enumeration Survey shows that the 1990 census differentially undercounted population segments and geographic areas. Revised PES figures show that the population was undercounted by about 1.6 percent and minorities were disproportionately undercounted: Blacks by 4.4 percent; Hispanics, 5.0 percent; Asian and Pacific Islanders, 2.3 percent; and American Indians, 4.5 percent (but 12.2 percent of American Indians on reservations). Renters were undercounted by 4.3 percent and children were disproportionately missed.

1991 — Independent demographic analysis estimates of the net undercount validate the overall PES estimates and provide undercount estimates for all censuses since 1940. These estimates indicate that the net undercount rate in 1940 for the whole population was 5.4 percent, but for Blacks, it was 8.4 percent. The difference in the undercount of Blacks and non-Blacks hovers in the range of 3.4 to 4.4 percentage points over the six censuses. After a decline in 1980 (to 3.7 percent), the net differential undercount rate for Blacks rises to 4.4 percent in 1990.

1991 — Based on the 7-to-2 recommendation of a Census Bureau committee of experts, Census Bureau Director Barbara Bryant recommends adjustment of the 1990 census to Commerce Secretary Robert Mosbacher.

1991 — Mosbacher, in consultation with an external panel of eight members, decides against adjustment. While acknowledging that a PES adjustment would move the national total closer to the truth, the Secretary's report argues that adjustment would not necessarily improve the relative accuracy of the census at all levels, particularly the smallest statistical areas.

1991 — Citing dissatisfaction with the outcome of the 1990 census, Congress enacts the Decennial

Census Improvement Act and requires the Census Bureau to contract with the National Academy of Sciences to study various alternatives, including sampling methods, to make the next census more accurate.

1992 — After New York City and other plaintiffs go back to court, a U.S. District Court judge in New York rules that Mosbacher's decision not to adjust the 1990 census violated neither the Constitution nor the Census Act.

1994 — The U.S. Court of Appeals for the 2nd Circuit overturns the District Court ruling and orders adjustment of the census unless there exists compelling government interests justifying the use of unadjusted numbers.

1994 — The Bureau of Labor Statistics (BLS) asks the Census Bureau to convert population controls for the Current Population Survey, which BLS sponsors, to estimates based on the 1990 adjusted census numbers. BLS also requests that the Consumer Expenditure Survey controls be adjusted in a similar fashion. Subsequent to the BLS decision, all other major national surveys conducted by the Census Bureau for other agencies are converted to an adjusted population basis.

1996 — U.S. Supreme Court upholds Mosbacher's decision not to adjust the 1990 census, saying it was "well within the constitutional bounds of discretion over the conduct of the census provided to the federal government." The high court rejects the appellate court's finding that adjustment decisions should be subject to heightened scrutiny, saying the Secretary's decision "need bear only a reasonable relationship to the accomplishment of an actual enumeration of the population." The court does not define "actual enumeration" or address the constitutionality of statistical adjustment.

1998 — As a result of an agreement with the Congress, the Census Bureau alters its plan to use scientific sampling in all three sites of the 1998 Dress Rehearsal of Census 2000. The Integrated Coverage Measurement survey is conducted in Sacramento, Calif., and Menominee County, Wis., but not in 11 South Carolina counties, where a traditional coverage measurement survey is performed. Both adjusted and unadjusted totals are published for Sacramento and Menominee. The coverage measurement survey results show a differential undercount of population segments in all three sites; these differentials are "corrected" in Sacramento and Menominee.

1999 — The U.S. Supreme Court rules that the Census Act bars the use of statistical sampling to produce state population totals for reapportionment. However, the high court leaves open the possibility that statistically adjusted numbers can be used for other purposes.

ACCURACY AND COVERAGE EVALUATION
STATEMENT ON THE FEASIBILITY OF USING STATISTICAL METHODS TO IMPROVE THE ACCURACY OF CENSUS 2000
SUMMARY POINTS

- This document is the statement of Dr. Kenneth Prewitt, Director of the Census, reflecting the preliminary determination that it is feasible to produce statistically corrected census data within the time frame required by law and that the statistical correction will improve the accuracy of the data.

- The document defines the feasibility of sampling based on two criteria: 1) operational feasibility -- whether its use is possible given available resources and required deadlines; and 2) technical feasibility -- whether its use, if carried out as planned, is expected to improve the accuracy of census data for non-apportionment uses of the data.

- The Census Bureau expects the use of statistical methods will improve the accuracy of the census and reduce the differential undercount based on decades of research and experience. This document describes the extensive research and experience with coverage measurement surveys using Dual System Estimation (DSE), culminating in the Census 2000 Accuracy and Coverage Evaluation (A.C.E.)

- This statement is the preliminary determination because statistically corrected redistricting, or other, data will not be released until the Census Bureau has reviewed the available data to verify its expectations have been met.

- The document describes the basis for the Census Bureau's expectation that the use of statistical methods, if implemented properly, will improve accuracy. The document defines two types of accuracy: 1) numerical -- how close the overall count of an area or group is to the actual number of people in the area or in the group, and 2) distributive -- how close the relative proportion of a geographic area or demographic group is to its true share, relative to other areas or groups. The goal of the Census Bureau is to achieve both numerical and distributive accuracy.

- Ever since the 1940 census, the Census Bureau has measured a differential undercount. In spite of its best efforts to conduct the census using traditional enumeration methods, the Census Bureau expects the differential undercount to persist in Census 2000. The Census Bureau has concluded that the best way to further decrease the undercount and the differential undercount is through the use of statistical methods.

- The use of statistical methods to correct for census undercounts has been widely discussed for

several decades. This document summarizes and discusses the major issues and concerns that have been raised.

- The strategy employed in Census 2000 is to count the population using traditional methods as accurately as possible for purposes of apportionment. The Census Bureau will then supplement the traditional enumeration procedures with modern scientific methods, as incorporated in the A.C.E. program, to produce the more detailed data required for redistricting and federal program purposes. Key components of the A.C.E. program include the sample design, the survey itself, and the Dual System Estimation (DSE) used to compute the estimates of the true population.

- Numerous other organizations agree that the use of a properly conducted scientific survey in conjunction with the enumeration has the potential to produce a more accurate census in 2000. These include, among others, the American Statistical Association, the American Sociological Association, the General Accounting Office, the Inspector General of the Department of Commerce, the Secretary of Commerce's Census 2000 Advisory Committee, the Census Bureau's Advisory Committee of Professional Associations, and the Census Bureau's Race and Ethnic Advisory Committees.

- Although the document describes in some detail the extensive research surrounding the use of statistical methods to improve the accuracy of the census enumeration, the Census Bureau also is committed to extensive research and innovation to improve other aspects of census taking. This process parallels the multi-year span of methodological research and planning that goes into preparing for a decennial census. There have been a number of innovations introduced for Census 2000 that the Census Bureau believes will have major impacts. These include:

  – a more comprehensive address file,
  – a more extensive, and for the first time paid, advertising campaign,
  – an expanded Census in Schools program,
  – extensive partnership efforts with state, local and tribal organizations,
  – a more effective questionnaire mailout/mailback campaign, and
  – advanced technologies to increase the accuracy and speed of the data collection and processing phases of the enumeration.

Scientific Methods and Probability Sampling

Q: Sampling is a "scientific" method. But what does that mean?

A: A scientific method has five characteristics:

objective – the information is factual in that the people who collect it do not have a vested interest in the outcome of their work

empirical – the information is measurable

systematic and *cumulative* – the collection is done in a carefully considered way that adds to prior knowledge

predictive – the process is consistent when applied in different situations

public – the information collected is public information

Thus, sampling for Census 2000 is a scientific method in that:

The process and the aggregate information it collects are public information;

The Census Bureau does not have a vested interested in the outcome, in terms of how many residents are in a given locale;

The data are measurable;

The information-collection process has been carefully designed and the data add to our knowledge about U.S. residents; and

The process holds true regardless of whether we are applying it in a big city or a small town, in the southwest or in the northeast.

Q: But what exactly is a "sample"?

A: A sample is a subset of the population that you want information about. The sample, also known as a survey, should be representative of the population as a whole in terms of key characteristics. In the scientific samples, every single member of the population (for example, a household) has a mathematically known chance of getting selected to be in a representative subset, or the "sample."

Q: How is a "sample" different from a "census" and why do we need both?

A: A census is when you try to get information from every member of the population. A sample is when you try to get information from only a subset of that population. A sample is useful when it is impossible to get information from every single member of the population. In this case, you can use the information gathered from the representative subset to generalize about the population at-large. However, if you are planning to generalize to the population, your sample must be carefully selected.

Q: How are samples selected?

A: There are various ways in which sampling is done. The two most common types are the probability sample and the non-probability sample. In the probability sample, each member of the sample is selected according to mathematical guidelines and each member of the population's chance for selection is known. This helps to ensure that the sample is representative of the population, and this is the method used in most scientific surveys, including Census Bureau surveys, public opinion surveys, and marketing surveys.

In a nonprobability sample, not every member of the population has a known chance of getting selected for the sample. This can lead to a subset that is not representative of the population, which means that you can not generalize findings from the sample to the population. A common type of survey using a nonprobability sample is the mall-intercept survey, in which researchers stop people at various locations in a shopping mall to ask them questions. This is **not** a probability sample because not every person shopping in the mall has a mathematically known chance of being asked questions; your chances are better or worse depending on whether you are shopping close to a location where the researcher is stopping people.

Q: How do you know how big a sample should be?

A: The size of an "adequate" sample depends on various factors. In general, the more persons in the population you are trying to study are different with respect to what you are trying to measure, the larger your sample should be. Also, if you expect members of the sample to drop out of the study before you are finished, you should increase your sample size by the number of members you expect might drop out. The size of your sample also depends on how much time and money you have to get information from all sample members. Generally, a larger sample is better. However, it is also important that the sample be representative of the population to which you are trying to generalize your findings.

Q: So is sampling error-free?

A: No. As with any other kind of information gathering, a sample can have "non-sampling" errors. For instance, the information can be recorded wrong or attributed to the wrong member of the sample. Furthermore, sampling is subject to "sampling error."

Q: What is sampling error?

A: Sampling error (also known as standard error) happens when the measurements taken from the sample do not exactly correspond to what exists in the population. Since we don't know exactly what exists in the population, sampling error is unavoidable, i.e., whenever a sample is taken, sampling error will exist.

Q: How do you recognize sampling error?

A: When the results are reported, the chart usually will show "margin of error," which can be

used to calculate the range of measurement in the population.

For example, you do a national survey of 5,000 people's favorite ice cream flavors, and this is what you find:

Chocolate: 67%
Vanilla: 11%
Other: 20%
Did not answer: 2%
Margin of error: plus or minus two points

What this means is that the range of favorite ice creams flavors in the population is most likely to be:

Chocolate: 65%-69%
Vanilla: 9%-13%
Other: 18%-22%
Did not answer: 0%-4%

Q: So, if sampling error always exists, what's the point of doing a sample?
A: Sampling is especially important when it is impossible or impractical to obtain information from every single member of the population. Thus, you obtain information from a sample of the population, then calculate the sampling error. With a sample, the rate of error can be calculated.

Q: Do all samples involve sampling error?
A: Yes, all probability samples involve sampling error. Nonprobability samples don't follow guidelines of mathematical probability and thus sampling error cannot be calculated.

Sampling and Selected Demographic and Economic Surveys

The Census Bureau conducts more than 200 economic and demographic surveys every year. These surveys all use sampling to provide data used to apply to the nation as a whole. How does this process work? Let's use our monthly retail trade survey to illustrate — it is based on a sample of more than 12,000 retail business units (out of a total of 2 million). We form business sampling units using data from the Standard Statistical Establishment List (SSEL). The SSEL is a file containing recent and historical administrative information from the Economic Censuses and several other sources. The sampling units are partitioned by kind-of-business and size. Within each partition, a random sample is selected using standard scientific methods. The methods ensure that all sizes of businesses are represented and are applied to result in estimates of pre-specified levels of precision.

Census Bureau Demographic Surveys

Note: Most demographic surveys are reimbursable and are conducted by the Census Bureau for other agencies and universities.

SURVEY	DESCRIPTION/PURPOSE	SAMPLE INCLUDES
American Community Survey	Provide timely detailed socioeconomic data about the country's communities.	National sample of 61,000 addresses is interviewed biennially in odd-numbered years.
American Housing Surveys	Provide for Housing and Urban Development a current and continuous series of data on selected housing and demographic characteristics for a national and metropolitan area sample. For Housing and Urban Development.	Metropolitan sample of 4,800 addresses in 41 rotating areas.
Consumer Expenditure Survey	Provides a current and continuous series of data on consumer expenditures and other related characteristics for use in determining the need to revise the Consumer Price Index (CPI), update the weights used to calculate the index, and for use in family expenditure studies and other. analysis.	The quarterly interview survey has an annual sample of about 61,000 primary sampling units. The diary survey has an annual sample of about 12,000 designated addresses.
Current Population Survey	Provide estimates of employment, unemployment, and other characteristics of the general labor force, of the population as a whole and of various subgroups of the population.	Approximately 59,500 households per month located in 754 primary sampling units.
Library Media Center Questionnaire /Schools and Staffing Survey	Collect the information necessary for a complete picture of American elementary and secondary school libraries for the National Center for Educational Statistics.	Public schools (9,882), private schools (3,558) and Bureau of Indian Affairs schools (124).
Long-Term Care Survey	Obtain data on the elderly's ability to perform daily acts of living, the limitations that prevent or impair their ability, the amount and type of care they require and their socioeconomic characteristics, such as age, income and martial status. For Duke University under contract to National Institute on Aging.	The 1999 sample consists of 3,887 people identified as impaired in the 1994 survey; 9,884 people identified as unimpaired in either the 1989 or 1994 LTC surveys; 5,500 people who turned 65 years old after the 1994 LTC; and 600 extremely-aged people (95+ years old).

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National Crime Victimization Survey	Provide for the Bureau of Justice Statistics information on crime victimization from a general population sample.	56,000 designated addresses located in approximately 658 primary sampling units.
National Epidemiological Survey of Alcohol Related Conditions 2001	The survey will collect information on alcohol use, experiences with alcohol and related conditions, as well as the demographics and family history used in analyzing health data. For NIAAA.	A national sample of 52,000 housing units drawn from the American Community Survey.
National Health Interview Survey	To provide information on a continuing basis about the amount and distribution of illness, its effects in terms of disability and chronic impairments and the kind of health services people receive. For National Center for Health Statistics.	About 71,000 are designated; some are interviewed with certainty, resulting in 41,000 interviewed units.
National Home and Hospice Care Survey	To provide information on hospice and home health facility providers and populations they serve. For National Center for Educational Statistics.	National sample of approximately 1,800 hospices and home health agencies.
National Hospital Discharge Survey	To provide demographic and medical data on discharged patients and other hospital information on a national basis annually. For National Center for Educational Statistics.	National sample of about 500 short-stay, non-federal hospitals.
National Longitudinal Survey of Women	To study longitudinally the work experience and related characteristics of four selected age-gender groups: mature men aged 45-59, mature women aged 30-44, and young men and young women aged 14-24. For Ohio State University.	Interviews with 5,377 of the 7,035 eligible women.
National Nursing Home Survey	Gather information about nursing facilities, their services and their residents. For National Center for Educational Statistics.	National sample of 1,500 nursing homes and similar facilities.

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National Prisoner Statistics Program	Provide information on adults incarcerated in state and federal correctional institutions, including their characteristics movements, and history. For Bureau of Justice Statistics.	All state and District of Columbia correctional authorities; about 40 participate.
National Survey of Ambulatory Surgery	Information about hospital-based and freestanding ambulatory surgery centers and will allow estimation of all surgical care, regardless of location. For National Center for Educational Statistics.	National sample size is 752 ambulatory surgery centers throughout the United States.
National Survey of Doctoral Recipients	Provide current estimates of the size and characteristics of the doctoral science that engineering recipients. For National Science Foundation.	Approximately 40,000 recipients of a U.S. Doctoral degree in science or engineering.
National Survey of Fishing, Hunting and Wildlife-Associated Recreation: 2001	Provide current data on fishing, hunting and wildlife-related activities of a non-consumptive nature, such as feeding, observing and photographing wildlife. For Federal Wildlife Foundation.	Preliminary screener questionnaire for 77,000 households.
New York City Housing Vacancy Survey	Determine the vacancy rate for New York City's rental stock, which the city uses to enact specific polices. For New York City.	Sample includes approximately 18,000 units.
Private School Survey	To develop and maintain a comprehensive universe file of private schools in the United States and to obtain data from these schools that are comparable to the state-level data obtained by the National Center for Education Statistics for the public school sector.	Approximately 41,000 traditional schools and 4,500 early childhood programs.

Census Bureau Demographic Surveys

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School Crime Supplement	Provide information on school-related victimization's on a national level. For National Center for Educational Statistics.	Approximately 10,000 households.
Schools and Staffing Survey	To collect the information necessary for a complete picture of American elementary and secondary education. For National Center for Educational Statistics.	About 13,300 schools that had any grades 1-12, the principals of the selected schools, about 68,000 of their teachers, and about 79,000 students who were taught by the teachers in the sample.
Survey of Income and Program Participation	To collect source and amount of income, labor force information, program participation and eligibility data, and general demographic characteristics to measure the effectiveness of existing federal, state, and local programs; to estimate future costs and coverage for government programs, such as food stamps; and to provide improved statistics on the distribution of income in the country.	Ranging from approximately 14,000 to 36,700 interviewed households.
Survey of Income and Program Participation (SIPP): 2004 Methods Panel	To improve the quality of the Survey of Income and Program Participation core data by improving individual items and sections of the questionnaire; reducing non-response to particular survey items; and redesigning the instrument to be more easily administered by interviewers and less burdensome for respondents.	For each experiment, we will select a sample of approximately 1,350 addresses for a test treatment and another 1,350 for a control treatment.
Survey of Inmates of Local Jails	Provide detailed information on the criminal histories of jail inmates, their recent offences, their socioeconomic and family backgrounds, their use of drugs and alcohol, and their activities and health care they receive while confined. The survey also provides information on victims of violent offenders. For Bureau of Justice Statistics.	We will conduct approximately 7,000 personal interviews in about 460 city and county jails distributed nationwide.

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Survey of Market Absorption	To measure the rate at which different types of new rental apartments and new condominium apartments are taken off the market over the course of the first 12 months following completion of a building. For Housing and Urban Development.	The monthly sample is limited to no more than 1,000 cases. If the number of completions in a month exceeds 1,000, a subsample of completions is selected.
Survey of Program Dynamics	To collect longitudinal data on the demographic, social and economic characteristics of a nationally representative sample of the U.S. population that permits the evaluation of the welfare reform legislation and its impact on the American people over time.	38,000 households, who previously participated in the 1992 and 1993 SIPP panels.
Teacher Follow-Up Survey	To determine teacher attrition rates in public and private schools and to obtain data on the characteristics of teachers who leave the profession and those who stay. For National Center for Educational Statistics.	Approximately 7,000 teachers--about 4,000 still teaching and the other 3,000 no longer teaching.
Telephone Point-of-Purchase Survey	To obtain the names and locations of retail, wholesale, and service establishments (outlets) at which consumers purchase specified goods and services (commodities). For Bureau of Labor Statistics.	We expect to attempt 159,000 cases and to complete approximately 67,000 interviews in 2000.

Census Bureau Economic Surveys

SURVEY	DESCRIPTION	SAMPLE INCLUDES
Annual Capital Expenditures Survey	Provide statistics on business spending for new and used structures and equipment by industry.	A sample of about 59,000 companies representing most of the economy and more than 22 million companies.
Annual Survey of Manufacturers	Provides detailed statistics on the location, activities and products of manufacturers.	A sample of 55,000 establishments representing over 380,000 establishments.
Advance Monthly Retail Sales Survey	One of the Nation's principal economic indicators, the Advance Monthly Retail Sales report provides an early indication of monthly sales by retailers. The report is released nine working days after the end of the month and covers retailer's sales of the previous month.	Includes 3,100 retaileers representing over one million retail firms
Annual Retail Trade Survey	Provides detailed industry measures of retail trade, including sales, inventories, gross margins and accounts receivables. For 1999, provides detailed data on E-commerce retail sales.	A sample of 23,300 firms representing over one million retailers.
Annual Wholesale Trade Survey	Provides detailed industry measures of wholesale trade, including sales, inventories, gross margin and gross profits. For 1999, provides the first measures of E-commerce sales of wholesalers.	A sample of 6,700 firms representing over 385,000 wholesalers.
Annual Public Employment Survey	Provides annual estimates of state and local government employment and payroll.	Sample panel includes all 50 state governments plus a sample of 11,000 local governments out of a total universe of nearly 90,000
Company Organization Survey	Annual survey used to update multi-establishment firms' organizational structure on the Standard Industrial Establishment List (SSEL). Also, collects employment and classification information for each establishment.	A sample of about 50,000 multi-establishment firms out of a universe of about 185,000. Includes 30,000 firms with more than 250 employees and 20,000 smaller firms.

Census Bureau Economic Surveys

Current Industrial Reports Program	More than 60 monthly, quarterly and annual surveys. Provides information on various industrial products, such as chemicals, consumer goods and heavy machinery.	Samples of establishments are small and vary in size by industry.
Manufacturing Energy Consumption Survey	Provide the Energy Information Administration with an estimate of energy use and related activities by U.S. manufacturers.	A sample of about 18,000 establishments.
Monthly Manufacturers' Shipments, Inventories, and Orders Survey	Provides measures of changes in domestic manufacturing activity and indications of future production.	A sample of about 4,500 reporting units.
Public Employment Retirement System Survey	Provides annual estimates of financial activities by state and local government for public retirement systems.	Sample panel includes all 200 retirement systems of state governments plus a sample of 1,100 local governments.
Service Annual Survey	Provides estimates of total revenue (and revenue by type for some industries) for about 300 NAICS service industries. This survey encompasses transportation, information, health care, and business and personal services. First-time coverage of selected finance industries is included in the 1999 survey.	A sample of 50,000 firms representing about 1.8 million firms engaged in providing information, financial, health care and business and personal services.
State Tax Collection Survey	Provides annual statistics on state government tax revenues.	Universe canvass of tax collections of all 50 states and the District of Columbia.

Uses of Sampling in Government and Industry

Governmental Uses Outside the Census Bureau

- Testing of Ground Beef for Salmonella Bacteria

  USDA (Food Safety and Inspection Service) safety inspectors randomly sample the products at meat processing plants for salmonella contamination. The department has established national standards for salmonella prevalence. For example, inspectors will test 53 samples of ground beef from the production run on the day the test is conducted. If more than 5 of those samples test positive for salmonella contamination in excess of the standard, USDA regulations state, the establishment must take immediate corrective action. If the establishment fails 3 tests in a row, the USDA will suspend inspections. Suspension of these inspections means that the plant cannot sell ground beef across state lines. The suspension remains in effect until the USDA is satisfied that the plant has taken appropriate measures to improve the safety of the product.

- Pesticide Residues in Fruits and Vegetables

  The USDA Pesticide Data Program tests food sold in the US for pesticide residues. The samples tested are composites of about 5 pounds of produce. Each year, inspectors gather between 500 and 700 samples of 10 to 12 different foods from both domestic suppliers throughout the country and imported fruits and vegetables. The samples are laboratory-tested for the presence of more than 200 different pesticides. The results are used by government agencies that regulate pesticide use to perform accurate assessments of the risks pesticides pose to the food supply.

- Workplace Safety

  Each year, the Bureau of Labor Statistics conducts a survey of on-the-job illnesses and injuries for the Occupational Health and Safety Administration (OSHA). The sample of 250,000 private-industry units reports on illness and injury nationwide and by industry. Reported are injuries and illnesses that cause losses in workdays as well as non-fatal cases where workdays are not lost. It reports counts, as well as incident rates, which allow comparisons among industries and work sites of various sizes. These data are used by national and state policymakers, insurance carriers, industrial hygienists, equipment manufacturers and others concerned with occupational health and safety in evaluating safety programs. OSHA uses these data to determine which industries need to improve safety programs and to measure the effectiveness of workplace safety legislation in reducing work-related injuries and illnesses.

- Air Quality—Smog Reduction

  In conjunction with the states, the Environmental Protection Agency samples air for ground level ozone content, also known as smog. The air quality sampling is done using electronic monitoring devices. If an area consistently exceeds the allowable limits for ozone content, the EPA can require that measures be taken to reduce smog levels. Some of these include the use of reformulated gasoline and emissions testing for automobiles.

- Transportation

  Every 5 years, the Department of Transportation conducts a household survey of daily personal travel habits. The Nationwide Personal Travel Survey covers several subjects, including the purposes of trip made by respondents, the means of transportation used, travel time and others. These data are used by the department to review programs, for planning, and to assess program initiatives. The most recent survey contained over 42,000 households which were drawn from telephone numbers.

  The National Automotive Sampling System Crashworthiness Data System (NASS CDS) is a database containing a representative sample of about 5,000 automobile accidents a year. These include minor, serious, and fatal crashes. Investigators obtain data from crash sites, locate the vehicles involved and interview crash victims and review medical records of victims. The data collected are used by the National Highway Traffic Safety Administration for evaluation of safety features in vehicle design, assessment of the effectiveness of traffic and vehicle safety programs, obtaining detailed data on the crash performance of vehicles, identification of traffic safety problems and other safety uses.

Private Industry Uses of Sampling

- Market Research

  Market research firms use samples for quantitative studies of markets for products. Samples are typically about 300 in size per market and per population. However, there may be several populations (subgroups) and several market areas in a given study. Samples are usually drawn by random digit dialing. Such studies generally analyze brand awareness, ad awareness, usage of products, purchase habits, attitudes towards the products, the linkage of commercials and other ads to the brands for which they were run and consumer measures of quality and other variables. They also contain demographic information such as the number of people in the households. The studies are used for measurement of success in advertising, of market penetration of a brand,

and improvement of competitive advantages in the market for a product. Under some circumstances, very large nationwide samples are used for product development.

- Television Ratings

  Nielsen Media Research surveys the television viewing habits of a random sample of approximately 5,000 households. Nielsen uses census counts of all housing units in the nation and randomly selects 6,000 blocks (or rural equivalents) and randomly selects households within each area. Data are used by television networks and other Nielsen customers to buy and sell advertising time and to make programming decisions.

Non-Profit and University Uses

Research Organizations like the RAND Corporation have departments that conduct survey research. RAND's Survey Research Group conducts general and special population surveys on a variety of subjects. For example, RAND recently conducted a survey of 1,500 residents, aged 16 and over, on opinions about world population issues.

Universities regularly conduct social research using sample data. One of the best-known instances of this practice is the General Social Survey conducted by the National Opinion Research Center at the University of Chicago. This sample of approximately 3,000 adults in the United States investigates a variety of issues, including family structures, income and poverty, and public opinion on a number of social issues.